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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* SCOTT JACOBS

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Appeal 2008-0378  
Application 10/727,061  
Technology Center 1600

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Decided: May 28, 2008

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Before, DONALD E. ADAMS, DEMETRA J. MILLS,  
RICHARD M. LEBOVITZ, *Administrative Patent Judges.*

MILLS, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134. The Examiner has rejected the claims for obviousness. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

The following claims are representative.

1. A mouthguard for use by athletes in competition and the like, comprising:

a first outer portion having a teeth engaging shape made from a material having a freezing point of less than 130°F such that it is capable of conforming to the user's teeth after warming, said first portion being formed into a tray having a generally U-shape, said first portion having a tab extending out from the tray, said tray having a plurality of holes therein,

a second inner portion formed on said first portion such that part of said second portion extends through said plurality of holes in said first portion to lock the two portions together, said second portion being formed from a gel material having sufficient softness to protect the user from damage during use in said athletic competition by producing a cushioning effect when compressed upon contact on the user during use.

5. The mouthguard of claim 4, wherein said second portion is formed from a gel selected from the group consisting of styrene block copolymer and thermoplastic polyurethanes.

*Cited References*

Adell	US 5,406,963	April 18, 1995
Ueno	US 5,513,984	May 7, 1996
Frantz	US 5,794,627	Aug. 18, 1998

*Grounds of Rejection*

1. Claims 1-4, 7-10, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as obvious over Frantz in view of Adell.

2. Claims 5, 6, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as obvious over Frantz and Adell in view of Ueno.

## DISCUSSION

### *Background*

The present invention relates to mouthpieces for insertion in a user's mouth for protection of the user's teeth. (Spec. 1.) More particularly, the invention relates to a mouthguard having a first portion that can be fitted to the user and a second portion providing the cushioning desired. (*Id.*)

1. Claims 1-4, 7-10, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as obvious over Frantz in view of Adell. We select claim 1 as representative of the rejection before us since Appellants have not separately argued the claims. 37 C.F.R. 41.37(c)(1)(vii).

The Examiner finds that

Frantz discloses in Figures 1-4 an appliance having an upper tray and a lower tray holding impression material into which a patient bites and a pull-strap (50) extending forward out of the patient's mouth. Figures 1-3 illustrates an upper and lower trays (12, 14) generally a U-shaped having front portions (26,28), left and right sides (36,36', 38,38') and the sides having side troughs (16, 16', 18, 18') and the putty rope (20) are placed in the troughs (16, 16', 18, 18') as shown in Figure 3. The putty rope (20) moves around the teeth to extend into the teeth undercuts and hardens around the teeth and against the soft tissues in order to secure the traps (12, 14) onto the upper and lower teeth and tissues. Frantz discloses the appliance may be made of plastic and the putty rope placed in the appliance's

troughs is an impression material. The Frantz appliance device lacks a plurality of holes therein, as recited.

(Ans. 4).

The Examiner therefore, relies on Adell for the disclosure in Figures 1-5 [of] a mouthguard (10) which generally is a U-shaped for fitting into the mouth and comprising wall (14) and trough (16, 18) on opposite sides. The mouthguard (10) includes series of holes (20) extending through wall (14). Adell discloses a liner (12) received in the trough (16, 18) and Figure 5 illustrates the liner (12) is received through the holes (12). Adell discloses the mouthguard (10) is made of ethylene/vinyl acetate copolymer.

(*Id.* 4-5.)

The Examiner concludes that

it would have been obvious to one skilled in the art to include holes on the Frantz appliance as taught by Adell as such would fill the impression putty material (20) in the holes, thereby, lock the appliance and the impression putty material together.

(*Id.* 5.)

Appellant contends that

[t]he combination of Frantz and Adell, taken as a whole, does not suggest the claimed subject matter because nowhere in either reference is (1) the concept of a cushion layer in contact with the teeth, (2) the use of an outer tray that does conform to the teeth (as neither Frantz nor Adell do) to position the cushion portion in a place to protect the user.

(Br. 4.)

When determining whether a claim is obvious, an Examiner must make “a searching comparison of the claimed invention – *including all its*

*limitations – with the teaching of the prior art.”* *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, “obviousness requires a suggestion of all limitations in a claim.” *CFMT, Inc. v. Yieldup Intern. Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing *In re Royka*, 490 F.2d 981, 985 (CCPA 1974)). Moreover, as the Supreme Court recently stated, “*there must be some articulated reasoning* with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int'l v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (emphasis added)).

Upon review of the evidence of record, we find sufficient evidence to establish prima facie obviousness of the claimed subject matter. In particular, Adell discloses a mouthguard having a first layer or trough having holes therein (Fig. 1) and a second layer or liner. (Adell, col. 3, ll. 39-44.) The first layer has a teeth engaging shape and is made of ethylene/vinyl acetate copolymer (Adell, col. 2, ll. 58-69), which according to the Specification is a material having a freezing point less than 130° F such that it is capable of conforming to the user’s teeth after warming. (Spec. 12:18-19.) Adell suggests that second layer or liner may be made of various materials, including polyurethane. (Adell, col. 3, ll. 27-40.) Similarly, according to the Specification, the second gel portion of the device may be made of thermoplastic polyurethanes, and this embodiment is recited in claim 5. (Spec. 13:2.) Adell does not disclose a tab extending out from the mouth tray as in claim 1, however this feature is described in Frantz. (Frantz, Fig. 1.) and thus would have been obvious to incorporate into Adell’s mouthguard for its known advantages

Appellant further argues that “[t]he outer trays of Frantz and Adell are not conformed to the user but serve to hold the conformable inner layer.” (Br. 4.)

The claims, however, do not recite that the first portion is conformed to the user. The claims before us require that the first outer portion has a “teeth engaging shape” and is made from a material having a freezing point of less than 130°F such that it is capable of conforming to the user's teeth after warming.

The trough of Adell has a U-shaped, teeth engaging shape – i.e., a shape which teeth are able to mesh with – and is made of the same material, ethylene/vinyl acetate copolymer, which is disclosed in the specification has a freezing point less than 130° F such that it is capable of conforming to the user's teeth after warming.

Finally, Appellant argues that, “[o]nly Applicant has made a mouthguard that repeatedly cushions the teeth by presenting a gel that is not formed into an impression of the user's teeth and that has an outer component that ... holds the cushioning gel against the teeth.” (Br. 3-4.)

We do not find that the claims recite or require that the gel layer of the second portion be formed into an impression of the user's teeth, as argued by Appellant. Furthermore, we find that the second portion or liner of Adell is made of the same material disclosed in the Specification, a polyurethane, and therefore which would be expected by one of ordinary skill in the art to “produce a cushioning effect” as required by claim 1.

In view of the above, the obviousness rejection is affirmed.

2. Claims 5, 6, 11 and 12 stand rejected under 35 U.S.C. § 103(a) as obvious over Frantz and Adell in view of Ueno. We select claim 5 as representative of the rejection before us since Appellants have not separately argued the claims. 37 C.F.R. 41.37(c)(1)(vii).

The Examiner finds that

Frantz et al discloses in Figures 1-4 an appliance having an upper tray and a lower tray holding impression material into which a patient bites and a pull-strap (50) extending forward out of the patient's mouth comprising elements as recited in these claims except for the impression material is not a gel, as recited. Ueno discloses in Figures 10 and 11 a construction of a mouthpiece wherein the ball members (3) are arranged and received in a groove (16). Ueno teaches the ball members (3) is made of thermoplastic elastomer (e.g. styrene block copolymer) which offers a softening point of higher than 100° C, higher than that of the mouthpiece. Therefore it would have been obvious to one skilled in the art during the time of the invention to utilize the styrene block copolymer, suggested by Ueno, in the Frantz appliance as such would provide cushioning effect when compressed upon contact on the user during use.

(*Id.* 5.)

Appellant contends that

Applicant has claimed a device in which the outer tray does conform to the user's mouth and gums, so that it is personalized and fits tightly in the mouth. In contrast again, Frantz et al. has an outer tray that does not conform. Adell's outer tray is a plastic material that does not deform upon heating and is hard. This lack of a conformable outer tray in both references thus also leads one skilled in the art away from the invention completely.

(Br. 5.)

In addition Appellant argues that

...[N]one of the references have an outer tray, which does not directly contact the user's teeth, that does conform when heated to give a better fit...

(Reply Br. 4.)

We are not persuaded by these arguments. As indicated herein, the claims do not recite that the first portion is conformed to the user or in direct contact with the user's teeth. The claims before us require that the first outer portion has a teeth engaging shape and is made from a material having a freezing point of less than 130°F such that it is capable of conforming to the user's teeth after warming. The trough of Adell has a U-shaped, teeth engaging shape and is made of the same material, ethylene/vinyl acetate copolymer, which is disclosed in the specification has a freezing point less than 130° F such that it is capable of conforming to the user's teeth after warming.

Furthermore, we agree with Examiner that it would have been obvious to have substituted styrene block copolymer of Ueno, as in claims 5, for its expected benefit to provide a cushioning effect when compressed by the teeth during its use. (Ueno, col. 7, ll. 26-29; Figs. 10-13; Ans. 5.)

We do not find the Appellants have presented sufficient rebuttal argument to overcome the Examiner's prima facie case of obviousness. The obviousness rejection is affirmed.

## SUMMARY

The obviousness rejections are affirmed.

Appeal 2008-0378  
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AFFIRMED

lp

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